

REMARKS

The Applicant thanks the Examiner for the careful examination of this application and respectfully requests the entry of the amendments indicated hereinabove. Claims 49-53 are pending and rejected.

The Applicant respectfully traverses the rejection of Claims 51-53 under 35 U.S.C. §112, second paragraph. The applicant submits that it is well known in the art that capacitors store an electrical charge and therefore capacitors are a storage element (page 2 lines 3-8, page 23 lines 8-10, FIGS. 1-2 and 23). In addition, the Applicant submits that the "storage node" is element 225 and 1366 (as well as 214), the "storage element" is the capacitor (225/1366 – 1367 – 1368), and the "first contact pillar" is element 225 (see FIG. 23 and page 23 lines 11-16).

The Applicant also respectfully traverses the objection to the drawings under 37 C.F.R. §1.83(a). The applicant submits that in Claim 51, the capacitor that is a storage element of a memory cell is comprised of 225/1366 (storage contact pillar coupled to a bottom storage plate) 1367 (dielectric) and 1368 (top plate) and these elements are shown in FIG. 23 (see also page 23 lines 11-16). In Claim 52, the "storage node" and the "first contact pillar" is element 225, as shown in FIG. 23 (see also page 22 lines 19-21 and page 23 lines 11-14). In Claim 53, the "storage node further comprises a conducting layer lining the trench and the

side of the first contact pillar" is elements 225/1366, as shown in FIG. 23 (see also page 22 lines 19-21 and page 23 lines 11-14). The Applicant notes that the storage node in FIG. 23 is the side of the capacitor that is connected to the access transistor (element 208), while the other side of the capacitor is the reference or ground plate (element 1368).

Claim 49 positively recites a capacitor formed in the trench overlying the first contact pillar such that the capacitor is formed at least in part on a side of the first contact pillar. These advantageously claimed features are not taught or suggested by the patents granted to Lee et al. or Fukuzumi; either alone or in combination.

Lee et al. teaches away from the advantageously claimed invention because Lee et al. teaches a capacitor that is formed above the contact pillar 50 (column 4 lines 42-67, and FIGS. 5-7), not at least in part on a side of the first contact pillar as advantageously claimed. Furthermore, the capacitor in Lee et al. is not formed in the trench (Lee et al.'s element 45) as advantageously claimed. The applicant respectfully traverses the statement in the Office Action (page 3) that element 75 is "a first metal layer". The Applicant submits that element 75 in Lee et al. is polysilicon (column 4 line 40).

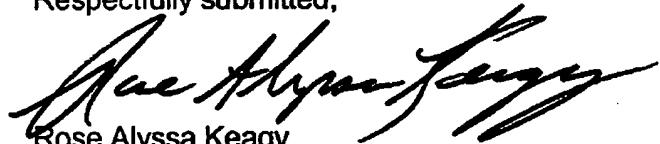
Similarly, Fukuzumi teaches away from the advantageously claimed invention because Fukuzumi teaches a capacitor formed above the contact pillar 38 (paragraphs 0047-0048, FIG. 3), not at least in part on a side of the first contact pillar as advantageously claimed.

Moreover, the teachings of Lee et al. cannot be combined with Fukuzumi because Lee et al. teaches completely filling the trench 45 with the contact pillar 50; therefore, it is impossible to form a liner in Lee et al.'s trench 45 in any manner that would increase the capacitance of the capacitor (column 3 line 65 through column 4 line 2, FIG. 3). Even if the teachings of Lee et al. could be combined with Fukuzumi, the resulting structure would be a capacitor formed above a contact pillar, not a capacitor formed in the trench overlying the first contact pillar such that the capacitor is formed at least in part on a side of the first contact pillar - as advantageously claimed.

Therefore, the Applicant respectfully traverses the Examiner's rejection of Claim 49 and respectfully asserts that Claim 49 is patentable over Lee et al. and Fukuzumi; either alone or in combination. Furthermore, Claims 50-53 are allowable for depending on allowable independent Claim 49 and, in combination, including limitations not taught or described in the reference of record.

For the reasons stated above, this application is believed to be in condition
for allowance. Reexamination and reconsideration is requested.

Respectfully submitted,



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